

## MIL Grade High Power Amplifier

This is a medium power, super broadband RF amplifier that operates from 20 MHz to 6 GHz, ideal for broadband military platforms as well as commercial applications because it is robust and offers high power over an extremely large bandwidth with decent power added efficiency. It was designed for broad band jamming and communication systems platforms. It is packaged in a modular housing that is approximately 3.5" (width) by 7.5" (long) by 1.00" (height). This amplifier has a typical saturated output power of 5-10 watts at room temperature.

Noise figure at room temperature is 10.0 dB typical. It offers a typical gain of 50 dB with a typical gain flatness of  $\pm 4.0$  dB. The power and gain flatness across the band is very flat for the bandwidth. Input VSWR is 2.0:1 typical. This amplifier operates from -40C to +85C base plate temperature.



- Gallium Nitride Broadband Power Amplifier
- Operation from 20 MHz to 6.0 GHz min
- Small Signal Gain 50 dB typical
- 5-10 Watts PSat typical

### Electrical Specifications

PARAMETER	MIN.	TYP.	MAX	UNITS	SYMBOL
Operating Frequency	20		6000	MHz	BW
Output Power CW	9	10	12	Watt	$P_{SAT}$
Small Signal Gain	50	54	56	dB	$G_{1dB}$
Input Power for Rated $P_{OUT}$		0	5	dBm	$P_{IN}$
Switching Speed, 1kHz TTL @ $P_{IN} = 0dBm$			1	uSec	$T_{ON/OFF}$
Small Signal Gain Flatness		$\pm 2.0$	$\pm 4.0$	dB	$\Delta G$
Third Order Intercept Point 2-Tones, 33dBm/Tone., $\Delta = 100$ KHz		+48		dBm	IP3
Input Return Loss			-10	dB	$S_{11}$
Noise Figure@ minimum attenuation			10	dB	NF
Harmonics @ Rated $P_{1dB} = 10W$		-20	-15	dBc	H
Spurious Signals		-70	-60	dBc	Spur
Operating Voltage	26	28	32	Volt	Vdc
Current consumption			2.7	Amp	$I_{DC}$



# ZHM20-6000/10

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Mechanical Specifications			
PARAMETER	VALUE	UNITS	LIMITS
Dimensions	3.5" X 7.5" X 1.0"	Inch	Max
Weight	2.0	lb	Max
RF Connectors In/Out	SMA Female		
DC Connectors			
Cooling	External Heatsink (Not Supplied)		

Environmental Characteristics (Design to Meet)					
PARAMETER	MIN.	TYP.	MAX	UNITS	SYMBOL
Operating Case Temperature	-20		+75	°C	T <sub>c</sub>
Storage Temperature	-40		+85	°C	T <sub>stg</sub>
Relative humidity (non-condensing)			95	%	RH
Altitude (MIL-STD-810F Method 500.4)			30,000	Feet	ALT
Shock / Vibration (MIL-STD-810F Method 516.5)		Airborne			SH / VI

Protections		
Input Overdrive	+10 dBm	Max
Load VSWR @ 25 W output power	∞ @ all load phase & amplitude for duration of 1 minute 2.0:1 @ all load phase & amplitude continuous	Nom

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### TYPICAL PERFORMANCE PLOTS

#### Small Signal Gain and P1dB

Top Curve: Small Signal Gain @ PIN = -20dBm  
 Middle Curve: Power Gain @ P1dB, PIN = -7.0dBm  
 Reference: 44dB, 1dB/div.  
 Bottom Curve: Input Return Loss  
 Reference: 0dB, 10dB/div.

